

What is claimed is:

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1 A method for minimizing total cost of interaction among components of a computer program, each of said components being characterized by at least one implementation property, said method comprising the steps of:

a) carrying out at least a partial run of said program;

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b) monitoring said at least partial run of the program to measure an amount of interaction between each pair of components;

c) determining a cost of interaction between each pair of interacting components;

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d) determining a choice of implementation properties which minimizes total cost of said at least partial run;

e) assigning said choice of said implementation properties to said components for a subsequent at least partial run of said program.

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2. A method as set forth in Claim 1, said implementation property comprising a choice of string representation of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; said cost of interaction comprising a function of said frequency and a cost of converting any differing string representations of said pair to a common string representation. .

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3. A method as set forth in Claim 2, wherein at least one string

representation is selected from ASCII, UNICODE, and EBCDIC.

4. A method as set forth in Claim 1, said implementation property comprising
a choice of data structure of a component, said amount of interaction measured
in step (b) comprising a frequency of interaction between each pair of interacting
components; said cost of interaction comprising a function of said frequency and
a cost of converting any differing choices of data structures of said pair to a
common choice of data structure.

5. A method as set forth in Claim 3, wherein at least one data structure is
selected from hash, tree, and compressed data structures.

6. A method as set forth in Claim 1, wherein the step (d) of determining the
choice is carried out by building a graph with nodes representing program
components and edges that join adjacent nodes representing interaction
therebetween, each edge being characterized by a cost of each interaction, then
using a graph cutting technique to find a minimum cut of the graph.

7. A computer readable medium including computer instructions for carrying out
a method for minimizing total cost of interaction among components of a
computer program running on a computer system, said method comprising the
steps of:

- a) carrying out at least a partial run of said program;
- b) monitoring said at least partial run of the program to measure an amount of
interaction between each pair of components;
- c) determining a cost of interaction between each pair of interacting
components;

- d) determining a choice of implementation properties which minimizes total cost of said at least partial run;
- e) assigning said choice of said implementation properties to said components for a subsequent at least partial run of said program.

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8. A computer readable medium as set forth in Claim 7, said implementation property comprising a choice of string representation of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; said cost of interaction comprising a function of said frequency and a cost of converting any differing string representations of said pair to a common string representation.

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9. A computer readable medium as set forth in Claim 8, wherein at least one string representation is selected from ASCII, UNICODE, and EBCDIC.

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10. A computer readable medium as set forth in Claim 7, said implementation property comprising a choice of data structure of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; said cost of interaction comprising a function of said frequency and a cost of converting any differing choices of data structures of said pair to a common choice of data structure.

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11. A computer readable medium as set forth in Claim 10, wherein at least one data structure is selected from hash, tree, and compressed data structures.

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12. A computer readable medium as set forth in Claim 7 wherein the step (d) of determining the choice is carried out by building a graph with nodes

representing program components and edges that join adjacent nodes representing interaction therebetween, each edge being characterized by a cost of each interaction, then using a graph cutting technique to find a minimum cut of the graph.

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